

## **REMARKS**

Upon entry of this amendment claims 16-19, 21, and 23-54 are pending. Claims 1-15, and 22 are cancelled. The claims 16-21, 23, 25-29, 32 and 33 have been amended to provide further clarity of Applicants' invention. New claims 38-54 have been added. Support for the new claims and amendments is found, for example, in the specification and claims as originally filed. The new claims and amendments do not add new matter.

Reconsideration and allowance of all pending claims is requested in view of the following remarks.

A. Request for refund of Applicant's fees for the Extension of Time and RCE

In the Office Action mailed on April 21, 2005, the Examiner has responded to Applicants' request that the finality of the office action mailed on August 2, 2004 be removed. As previously communicated in the RCE and response filed January 6, 2005, the Examiner had introduced four new grounds of rejection (claims 16-17 and 19-20 are now rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,824,434 to Kawakami et al.; claims 21-29 are now rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. No. 6,402,795 to Chu et al., claims 30-34 were rejected as being obvious over Brodd in view of Stachowiak and are now allowed; claim 35 was rejected as being obvious over Brodd in view of Chu et al. and is now allowed). In view of the new grounds of rejection, it was not proper to issue a final office action. MPEP § 706.07(a).

The Examiner has indicated that the finality status was erroneously indicated in the Office Action Summary. However, the Examiner has also indicated that it was clear from several references to "new ground" rejections in the office action, the lack of finality statement in the "conclusions," and the appropriate status in PALM and PAIR, that this Office Action was in fact Non-Final.

Applicants thank the Examiner for removing the finality of the office action. However, the non-final status was not clear to Applicants. The finality was specifically stated in the Office Action Summary, and prior to filing of the RCE and response on January 6, 2005, Applicants' requested by telephone and in writing clarification from the Examiner and removal of the finality of the Office Action mailed on August 2, 2004. However, Applicants were unable to obtain such

clarification, and thus to preserve all patentable right Applicants filed a RCE. Applicant respectfully reiterates the request for the Examiner to refund Applicants' fees for the Extension of Time and RCE.

B. Rejections under 35 U.S.C. §102 (b)

The Examiner has rejected claims 16-17, 19-20, and 36 under 35 USC §102(b) as being anticipated by Kawakami *et al.* U.S. Patent No. 5,824,434 (hereinafter *Kawakami*).

Independent claim 16 has been amended to provide clarity that the lithium and gas are co-deposited on the substrate of the anode.

With respect to claim 16, the Examiner contends that since process step limitations with respect to lithium metal being “co-deposited in-situ with one or more gaseous materials” is not given patentable weight, the method limitations of the claim do not patentably distinguish Applicants' anode from that of *Kawakami*. In particular, the presence of process limitations in product claims, where the product does not otherwise patentably distinguish over the prior art, cannot impart patentability to the product. In *re Stephens* 145 USPQ 656 (CCPA 1965). The Examiner further contends that claim 16 only differs from *Kawakami* by its method of production, and in accordance with MPEP “[E]ven though a product-by-process claims are limited by and defined by the process, determination of patentability of based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In *re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Applicants submit herewith an affidavit under 37 C.F.R. 1.132 that provides evidence that the lithium anode of their invention is patentably distinct to the lithium anode *Kawakami*. This affidavit provides evidence of the superior results of utilizing the present invention, which includes co-depositing gaseous material and lithium on a substrate to form an anode active layer. The affidavit provides evidence that lithium anodes formed by co-deposition of lithium with one or more gaseous materials show better performance in lithium batteries than either an anode active layer consisting of only lithium metal and no CO<sub>2</sub> treatment, or an anode where the surface of the lithium anode active layer is post-treated with CO<sub>2</sub>. The results, as shown in the examples and tables in the affidavit, provide evidence of the superior and unexpected

performance of the anodes of Applicants' invention. Applicants' anode is not the same as an anode that is subject to post-treatment with gas as taught by *Kawakami*. The affidavit provides evidence that the co-deposited anodes of Applicants' invention are patentably distinct from the anodes of *Kawakami*. Therefore, a prima facie case for a §102 rejection has not been made. Applicants submit that the rejection under 35 USC §102(b) is traversed for this reason alone.

Applicant submits that the Examiner's concerns have been fully addressed, and respectfully requests that the rejections under 35 U.S.C. §102(b) of claim 16 withdrawn.

In order to sustain a §102(b) rejection the cited reference must disclose each and every limitation of a claim. As discussed above, the anode of independent claim 16 is patentably distinct from the teaching of *Kawakami*. Claims 17, 19-20 and 36 depend from independent claim 16 and, therefore, are patentable for at least the same reasons as claim 16. Applicants submit that the rejections under 35 USC §102(b) are traversed for this reason alone, and respectfully requests that the rejections under 35 U.S.C. §102(b) of claims 17, 19-20 and 36 be withdrawn.

In view of the comments above, Applicants submit that the concerns of the Examiner have been fully addressed, and respectfully request that the rejections under 35 U.S.C. §102(b) of claim 16-17, 19-20 and 36 be withdrawn.

### C. Rejections under 35 U.S.C. §102 (e)

The Examiner has rejected claims 21-29 under 35 USC §102(e) as being anticipated by *Chu et al.*, U.S. Patent No. 6,402,795 (hereinafter *Chu*).

Claim 22 has been cancelled.

In order to sustain a §102 rejection the cited reference must disclose each and every limitation of a claim. *Chu* teaches active metal anodes, including lithium, having protective layers (*Chu*, abstract and col. 2, lines 19-24). *Chu* discloses an "electrode 10" which "includes a lithium metal layer 16 sandwiched between current collector 14 and protective layer 18" (*Chu*, Figure 1 and col. 4, lines 54-56). The anode is formed by electrochemical plating lithium or active metal layer between the protective layer and the current collector either in a battery or in an electrolytic cell (*Chu* col. 2, lines 22-24 and 58-63, col. 3, lines 3-6, col 4. lines 50-56). The protective layer is formed on the current collector before the lithium active layer is formed (*Chu*, col. 4, lines 39-40). The separate and distinct protective layer and anode active layer structure is

shown in Figure 1 of *Chu*. The protective layer is preferably a glass or amorphous material that is a single ion conductor (col. 7, lines 50-53, col. 9, lines 5-8). Suitable glasses, as the Examiner indicated, for the protective layer include “modifier/network” former glass, including network formers such as  $\text{Li}_3\text{BO}_3$ ,  $\text{Li}_2\text{OB}_2\text{O}_3$ ,  $\text{Li}_3\text{AlO}_3$  or  $\text{Li}_2\text{OAl}_2\text{O}_3$ . The protective layer of *Chu* that includes a glass is not an anode active layer. Thus, *Chu* teaches anodes have two separate and distinct layers formed on the current collector, one layer is a protective layer that can include “modifier/network” former glasses, and the other is an anode active layer, e.g. lithium, that is electroplated between the current collector and the protective layer.

As discussed above, *Chu* does not teach an anode active layer comprising lithium metal and a reaction product of lithium with one or more gaseous materials of either independent claims 21 or 25. In contrast, *Chu* teaches a protective layer that may comprise lithium oxides, the protective layer is not an anode active layer, and is separate and distinct from the anode active layer that is sandwiched between the protective layer and current collector. Therefore a prima facie case for a §102 rejection has not been made.

Applicant submits that the Examiner’s concerns have been fully addressed, and respectfully requests that the rejections under 35 U.S.C. § 102(e) of claims 21 and 25 be withdrawn.

The Examiner has objected to claims 23, and 26-28 as only differing from *Chu* by their method of production. Further, the Examiner has objected to claims 24 and 29 as being anticipated by *Chu*. As discussed above, the anode of independent claims 21 and 25 are not disclosed or taught by *Chu*. The limitations of claims 21 and 25 not taught in *Chu* are also present in claims 23, 24, and 26-29 because they depend from independent claims 21 or 25. *Chu* teaches an anode that has a lithium metal anode active layer and a separate and distinct protective layer and the substrate. Applicants submit that the rejections under 35 U.S.C. §102(e) are traversed for this reason alone.

Applicants submit that the concerns of the Examiner have been fully addressed, and respectfully request that the rejections under 35 U.S.C. §102(e) of claims 21, and 23-29 be withdrawn.

D. Rejections under 35 U.S.C. §103 (a)

The Examiner has rejected claim 18 under 35 USC §103(a) as being unpatentable over *Kawakami* in view of Zhuang *et al.*, The Reaction of Lithium with Carbon Dioxide studied by photoelectron Spectroscopy, Surface Science, 1998.

Claim 18 depends from independent claim 16 and, therefore, is patentable for at least the same reasons as claim 16. As discussed above, the limitations of independent claim 16 are not disclosed and are patentably distinct from the teaching of *Kawakami*. Applicants submit that the rejection under 35 USC §103(a) is traversed for this reason alone.

In view of the comments above, Applicants submit that the concerns of the Examiner have been fully addressed, and respectfully request that the rejections under 35 U.S.C. §103(a) of claim 18 be withdrawn.

E. Allowed Claims

The Examiner in the Office Action mailed April 21, 2005, has indicated the allowance of claims 30-35 and 37. Claims 32 and 33 have been amended. New claims 53 and 54 have been added. The amended and new claims are dependent upon allowed claim 30, and include all the limitations of the allowed claim. Allowance of the amended and newly added claims is respectfully requested.

## CONCLUSION

In view of the amendments and arguments herein, reconsideration is respectfully requested. Applicants believe this case is in a condition for allowance, and respectfully requests withdrawal of the rejections and allowance of the pending claims.

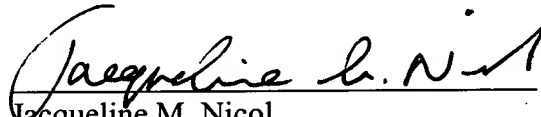
Applicant reserves the right to prosecute additional claims, including claims of broader scope, in a continuation application.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except the Issue Fee, for such extension is to be charged to **Deposit Account No. 19-3878**.

The Examiner is invited to telephone the undersigned at the number listed below if it would in any way advance prosecution of this case.

Respectfully submitted,

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